Name:

at1113exam: Expand, factor, and solve quadratics (v311)

1. Expand the following expression into standard form.

$$(2x + 7)^2$$

$4x^2 + 14x + 14x + 49$

$4x^2 + 28x + 49$

2. Expand the following expression into standard form.

$$(8x + 7)(8x - 7)$$

$64x^2 - 56x + 56x - 49$

$64x^2 - 49$

3. Expand the following expression into standard form.

$$(4x - 3)(6x + 7)$$

$24x^2 + 28x - 18x - 21$

$24x^2 + 10x - 21$

4. Solve the equation.

$$(5x - 9)(2x - 3) = 0$$

$x = \frac{9}{5}$ $\quad$ $x = \frac{3}{2}$

5. Solve the equation.

$$8x^2 + 32x + 38 \;=\; 3x^2 - 5x - 4$$

$$5x^2 + 37x + 42 = 0$$
$$(5x + 7)(x + 6) = 0$$
$$x = \frac{-7}{5} \qquad x = -6$$

6. Solve the equation with factoring by grouping.

$$18x^2 + 15x + 12x + 10 \;=\; 0$$

$$(3x + 2)(6x + 5) = 0$$
$$x = \frac{-2}{3} \qquad x = \frac{-5}{6}$$

7. Factor the expression.

$$x^2 + x - 56$$

$$(x + 8)(x - 7)$$

8. Factor the expression.

$$36x^2 - 25$$

$$(6x + 5)(6x - 5)$$